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*Frank Wm. Rane*

**The**  
**STATE FORESTER**  
**OF MASSACHUSETTS**



**FIFTH ANNUAL REPORT**

**1908**



**FRANK WM. RANE**  
**STATE FORESTER**



FIFTH ANNUAL REPORT OF THE  
STATE FORESTER OF MASSACHUSETTS  
FOR THE YEAR 1908      \*      \*

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FRANK WM. RANE  
STATE FORESTER



APPROVED BY THE STATE BOARD OF PUBLICATION

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# Commonwealth of Massachusetts.

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## FIFTH ANNUAL REPORT OF THE STATE FORESTER.

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*To the General Court.*

It is with continued pleasure that I submit this, the fifth annual report of the State Forester of this Commonwealth.

The office has increased in usefulness, and the work along all lines has been greatly enlarged. With forest products in constantly increasing demand, and thus all kinds of woods quickly finding a ready market, our people realize that right here in Massachusetts much of our cheap lands can be made more productive, and hence valuable in proportion to how well we care for them.

The forest warden act first went into effect last spring, and, although we have had but one season to test its efficiency, there can be no doubt but that this one natural channel of definite authority and usefulness will work wonders in establishing a successful State forest policy. These 343 forest wardens, one in each town and city with forested area, have already done valiant service, and when they are more experienced and are given public-spirited encouragement by our people throughout the State, they are bound to become great factors for good everywhere. With such an army of men enlisted to do service not only for their respective communities but in the aggregate for the State as a whole, results must come.

The work of making examinations and giving advice on forestry matters has grown even beyond our expectations. The correspondence has been very much larger, but more

readily handled, due to the available literature published last year and this.

The continued hearty co-operation and cordial assistance heretofore rendered to the State Forester have not been wanting this year. After due consideration and study of our forestry needs, some bills were presented before the last General Court which met with approval and were enacted. As on similar occasions heretofore, the forestry interests at the hearings before the Legislature were represented by all our forestry and agricultural organizations, and by public-spirited citizens. In fact, I do not believe I am over-stating conditions when I say that Massachusetts citizens generally are in accord in requesting you, the General Court, to enact as many laws as are necessary to regulate and establish a sane and practical system of forest management throughout this Commonwealth.

#### NEW LEGISLATION.

The new legislation enacted by the last General Court on forestry matters was as follows:—

- I. Reforestation act.
- II. Forest fire protection act.
- III. Revised Law on exemption of reforested lands from taxation.
- IV. A resolve authorizing the sale of certain publications of the State Forester.

#### I. REFORESTATION ACT.

The enactment of the bill on reforestation, introduced by Senator Treadway, marks the beginning of a practical demonstration of forest planting throughout the State. This work, it is believed, will prove not only of great economic importance, but be a great factor in practically demonstrating what can be actually accomplished. There is very little excuse henceforth for those of us who own run-out or cheap lands not to make use of them, as the State is ready to meet us more than half way.



**THE FIRST GANG TO BEGIN PLANTING.**—They are working under the reforestation law of Massachusetts, November, 1908, at South Ashburnham. Several hundred acres will be set next spring.



The bill is as follows:—

ACTS OF 1908, CHAPTER 478.

AN ACT TO PROVIDE FOR THE PURCHASE OF FOREST LAND AND FOR  
REFORESTATION.

*Be it enacted, etc., as follows:*

SECTION 1. For the purpose of experiment and illustration in forest management and for the purposes specified in section seven of this act, the sum of five thousand dollars may be expended in the year nineteen hundred and eight, and the sum of ten thousand dollars annually thereafter, by the state forester, with the advice and consent of the governor and council, in purchasing lands situated within the commonwealth and adapted to forest production. The price of such land shall not exceed in any instance five dollars per acre, nor shall more than forty acres be acquired in any one tract in any one year, except that a greater area may so be acquired if the land purchased directly affects a source or tributary of water supply in any city or town of the commonwealth. All lands acquired under the provisions of this act shall be conveyed to the commonwealth, and no lands shall be paid for nor shall any moneys be expended in improvements thereon until all instruments of conveyance and the title to be transferred thereby have been approved by the attorney-general and until such instruments have been executed and recorded.

SECTION 2. The owners of land purchased under this act, or their heirs and assigns, may repurchase the land from the commonwealth at any time within ten years after the purchase by the commonwealth, upon paying the price originally paid by the commonwealth, together with the amount expended in improvements and maintenance, with interest at the rate of four per cent per annum on the purchase price. The state forester, with the approval of the governor and council, may execute in behalf of the commonwealth such deeds of reconveyance as may be necessary under this section: *provided, however,* that there shall be included in such deeds a restriction requiring that trees cut from such property shall not be less than eight inches in diameter at the butt.

SECTION 3. The state forester may in his discretion, but subject to the approval of the deed and title by the attorney-general as provided in section one, accept on behalf of the commonwealth gifts of land to be held and managed for the purpose hereinbefore expressed. A donor of such land may reserve the right to buy back the land in accordance with the provisions of section two, but in the absence of a provision to that effect in his deed of gift he shall not have such right.

SECTION 4. Land acquired under the provisions of this act shall be under the control and management of the state forester, who may, subject to the approval of the governor and council, cut and sell trees, wood and other produce therefrom.

SECTION 5. All moneys received by or payable to the commonwealth or any one acting on its behalf under the provisions of this act shall be paid into the treasury of the commonwealth.

SECTION 6. Land acquired under the provisions of this act and subsequently reconveyed under the provisions of sections two or three shall not be exempt from taxation on account of any plantation of trees set out or planted while it was held by the commonwealth.

SECTION 7. For the purpose of assisting in reforestation a portion, not exceeding twenty per cent of the money authorized by this act to be expended may be used by the state forester for the distribution at not less than cost of seeds and seedlings to land owners who are citizens of the commonwealth, under such conditions and restrictions as the state forester, subject to the approval of the governor and council, may deem advisable.

SECTION 8. The state forester shall replant or otherwise manage all land acquired by the commonwealth and held by it under the provisions of this act, in such manner as will, in his judgment, produce the best forest growth both as to practical forestry results and protection of water supplies.

SECTION 9. All acts and parts of acts inconsistent herewith are hereby repealed.

SECTION 10. This act shall take effect upon its passage. [Approved May 1, 1908.

As above indicated, this bill was approved May 1, 1908, and, as the planting season begins as soon as the frost leaves the ground in the spring, we were unable to make use of the appropriation until later in the year.

In order to bring the enactment to the attention of our people, and to make the first year's appropriation go as far as possible, the following general letter was sent out to all the chairmen of the boards of selectmen of our towns, newspapers, agricultural organizations, women's clubs, etc.:—

DEAR SIR:—The recent General Court enacted a law authorizing the State Forester, subject to the approval of the Governor and Council, to establish a system of forest reserves for promoting the forestry interests of the Commonwealth of Massachusetts (chapter 478, Acts of 1908).

The amount appropriated for this year is \$5,000, and succeeding years, \$10,000 annually.

In order to make the appropriation as useful as possible, I am addressing the chairman of the board of selectmen in each town, also all organizations and persons likely to be interested, asking if they have any lands they desire to turn over to the State for forest demonstration purposes. As many acres have already been offered to the State, provided the State Forester will accept and reforest them, and as it is believed that there are many more that would do likewise, I take this opportunity to bring the matter to your attention, and through you to your board, town and public interests.

Should your town authorities neglect to take advantage of this offer, you undoubtedly have some live, enthusiastic organizations, such as the grange, village improvement societies, farmers' and mechanics' clubs, etc., or even one or more public-spirited citizens, who would gladly donate cheap lands for the purpose. The donations for consideration are to be in the following classes: (1) land offered to the State free without restrictions; (2) land offered to the State free with restrictions.

As the work of reforestation thus done is to serve as an object lesson educationally, the State Forester desires in so far as possible to ultimately have these demonstrative forestry experiments in various representative sections of the State, locating them on frequently travelled roads, where they may do the most good.

Should you find an interest in your town to take this matter up, please advise me. It is desired that this work be gotten well in hand, so that all plans may be matured and the definite arrangements made where this work is to go forward.

Only a limited appropriation is available, and if you care to have your town do something, please take the matter up at an early date and confer with me.

It is believed much good is to come from this work, in promoting a better utilization of our waste and neglected lands, that should and will produce valuable forest products when properly husbanded.

When your application is received, it will be filed, and as soon as a date can be arranged, the State Forester or his authorized agent will meet with you or your committee and go over the land to complete arrangements for accepting and planting the same. First come, first served!

Very sincerely yours,

F. W. RANE.

State Forester

STATE HOUSE, BOSTON, MASS.

The outcome of this agitation has resulted in the State's taking over by the end of the fiscal year, Nov. 30, 1908, 882 acres of land and purchasing about a million and a half of seedlings and transplants. We also planted about 25 acres to white pine at South Ashburnham this last fall.

The above work exhausted our first appropriation, and we are now prepared to begin the work of reforestation in earnest, as soon as the frost leaves the ground in the spring.

During this winter we are planning our next year's campaign, and already have many tracts of land in view in various sections. In order to take these lands over, besides an examination as to their suitability for reforesting, much time is necessary to make the necessary survey and transfer of the title to the State.

Of the 1,000 acres turned over to the State thus far, only 160 acres have been purchased, the remainder simply being deeded to the State at no expense. In nearly every instance the owners have inserted the repurchasing clause, so as to regain the property within ten years.

*Lands acquired by the State.*

Up to the present the State Forester has deeds in his possession from the following towns:—

TOWN.	Acres.	TOWN.	Acres.
Andover, . . . . .	40	Oxford, . . . . .	20
Ballardvale, . . . . .	60	Rowley, . . . . .	100
Barre, . . . . .	50	Sandwich, . . . . .	40
Belchertown, . . . . .	10	South Ashburnham, . . . . .	100
Carver, . . . . .	5	Spencer, . . . . .	75
Dunstable, . . . . .	20	Templeton, . . . . .	107
Erving, . . . . .	40	Westford, . . . . .	40
Gardner, . . . . .	64	Westminster, . . . . .	120
Hubbardston, . . . . .	54	Winchendon, . . . . .	50
Montague, . . . . .	26		
			932

In this work of reforestation it is my plan to utilize the local forest wardens whenever practicable, of course under proper State supervision, and thus in time the State will have a corps of reforesting experts.

One hundred thousand Scotch pines have been shipped to Sandwich and heeled in this fall, for use in planting on the Cape next spring.



**AN ABANDONED MASSACHUSETTS FIELD.**—Nature is trying to reforest; man can assist, and quick results will follow.



Of course this work is but in its infancy, but it is believed that our people generally will appreciate this forward movement, and as soon as they realize the generous offer on behalf of the State they will be quick to accept the assistance offered.

With our depleted, neglected and waste lands reharnessed and made a live factor throughout Massachusetts, one of our natural resources will be headed in the right direction. In one town a prominent business man said that the agitation and taking over of lands by the State for reforestation have increased valuations of farming property fully 15 per cent already. If this is true, it must follow that when actual results are shown, the benefits are bound to be still greater.

## II. FOREST FIRE PROTECTION.

This act is bound to accomplish good results. One of the greatest drawbacks to a stalwart progressive movement in forestry is the destruction and wanton waste caused by fires.

The time has come when the towns throughout the State must give a reasonable degree of assurance to their citizens that they are to be protected against losses by fire, if they expect people to invest time and money in reforestation and to build up a proper forest policy.

The following law was enacted in order to regulate and lessen forest fires everywhere. Here is an opportunity for the towns to clothe their forest wardens with power to accomplish results. If all our public-spirited people will give this law proper consideration, and accept the permit clause at the spring annual town elections this year, forest fires are bound to decrease. It is not the purpose of the law to take away personal liberties, but to conform the regulations for the benefit of the common good. Our towns throughout this State will be in the future what we make them. The following is the act:—

### ACTS OF 1908, CHAPTER 209.

#### AN ACT TO PROVIDE FOR THE PROTECTION OF FOREST OR SPROUT LANDS FROM FIRE.

*Be it enacted, etc., as follows:*

SECTION 1. In a town which accepts the provisions of this act or has accepted a corresponding provision of earlier laws no fires shall

be set in the open air between the first day of April and the first day of December, except by the written permission of the forest warden: *provided*, that debris from fields, gardens and orchards, or leaves and brush from yards may be burned on ploughed fields by the owners thereof, their agents or lessees, but in every case such fire shall be at least two hundred feet distant from any forest or sprout lands, and shall be properly attended until it is extinguished. The forest warden shall cause public notice to be given of the provisions of this section, and shall enforce the same. Whoever violates the provisions of this section shall be punished by a fine of not more than one hundred dollars, or by imprisonment for not more than one month, or by both such fine and imprisonment.

SECTION 2. The provisions of the preceding section shall not apply to fires which may be set in accordance with regulations and methods approved by the superintendent for suppressing the gypsy and brown tail moths.

SECTION 3. The state forester shall notify every town in the commonwealth of the passage of this act by sending at least three printed copies thereof to the town clerk, who shall post the same in conspicuous places.

SECTION 4. The state forester and forest warden may arrest without a warrant any persons found in the act of setting a fire in violation of any provision of this act.

SECTION 5. The selectmen of every town shall cause this act to be submitted to the voters for their acceptance at the next annual meeting of the town after the passage of this act. The vote shall be taken by separate ballot, and shall be "Yes" or "No" in answer to the following question printed upon the ballot: "Shall an act passed by the general court in the year nineteen hundred and eight, entitled 'An Act to provide for the protection of forest or sprout lands from fire' be accepted by this town?" A majority vote of the legal voters present and voting at such meeting shall be required for the acceptance of this act; and upon such acceptance the provisions of section twenty-four of chapter thirty-two of the Revised Laws shall cease to apply to any town which has previously accepted that section. *[Approved March 14, 1908.]*

### III. THE REVISED LAWS ON EXEMPTION OF REFORESTED LANDS FROM TAXATION.

The old law (R. L., c. 12, § 6) required that in order to get planted lands exempt from taxation at least 2,000 trees must be set to the acre. As 1,200 trees is the number commonly recommended, or 6 by 6 feet, this revision was necessary. The new revision also allows the filling out of naturally stocked lands, so that they may receive similar exemp-

tion. This ought to encourage some renewed efforts in that direction. The following is the act:—

ACTS OF 1908, CHAPTER 120.

AN ACT RELATIVE TO THE TAXATION OF PLANTATIONS OF CERTAIN VARIETIES OF TREES.

*Be it enacted, etc., as follows:*

Chapter twelve of the Revised Laws is hereby amended by striking out section six and inserting in place thereof the following:—  
*Section 6.* Land upon which pines, chestnuts, larches, spruces, hemlocks, walnuts, hickories, American and large-toothed poplars, yellow and paper birches, beeches, maples, basswoods, or ash timber trees, or others when approved by the state forester, have been set out or planted to the number of not less than six hundred per acre, and which by such setting out or planting has become evenly stocked with such trees to the number of not less than twelve hundred per acre, including in such number the trees growing naturally upon said land, shall be exempt from taxation for a period of ten years after the said trees have grown in height two feet on the average, upon satisfactory proof by the owners to the assessors of the foregoing facts: *provided*, that at the time when the trees are planted or set out the said land is not woodland or sproutland, or land containing more than six hundred standing trees to the acre, and does not exceed in value ten dollars per acre; and *provided, further*, that such exemption shall not extend beyond the time during which said land is devoted exclusively to the growth of said trees. [Approved February 25, 1908.

IV. AUTHORIZATION FOR THE SALE OF CERTAIN PUBLICATIONS OF THE STATE FORESTER.

Certain publications of this officer were so much in demand that to meet the same would be a financial burden, and as many of those desiring the publications expressed a willingness to pay for them if it were possible, the following resolve has been passed, enabling the State Forester to sell certain publications at cost, when sanctioned by the Governor and Council. The following is the resolve:—

ACTS OF 1908, CHAPTER 121.

RESOLVE TO AUTHORIZE THE SALE OF CERTAIN PUBLICATIONS OF THE STATE FORESTER.

*Resolved*, That such publications of the state forester as shall be designated by the governor and council may be sold by the state

forester at a price not less than the cost thereof; and additional copies may be printed for sale at the discretion of the governor and council, the expense thereof to be paid from the receipts from such sales. Any amounts received from such sales shall be paid into the treasury of the commonwealth. [Approved June 1, 1908.

Many of the publications have been sent to other States since this resolve was passed. Upon its passage the following letter was sent to all applicants, and new editions have been printed:—

DEAR SIR OR MADAM:— Your application for either or both of the following forestry publications has been received:—

(1) "The Commercial Forest Trees of Massachusetts: how you may know Them. A Pocket Manual." For general use.

(2) "The Study of Trees in Our Primary Schools." For teachers, mothers, and all interested in teaching children to love trees and nature.

Under the Resolves of 1908 (chapter 121), the Governor and Council have designated that these publications be sold by the State Forester at a price not less than the cost thereof; and additional copies may be printed, the expense thereof to be paid from the receipt of such sales.

I am empowered to offer the above-named publications to you at the following prices:—

(1) The Pocket Manual, "The Commercial Forest Trees of Massachusetts: how you may know Them," for 5 cents a copy at this office, or by mail for 2 cents extra.

(2) "The Study of Trees in Our Primary Schools," for 12 cents, or by mail 8 cents extra.

In case a large number are wanted, as for schools, etc., they can be forwarded by express.

These publications are neatly gotten up, and, as they are in great demand (the first edition of 5,000 being exhausted in ten days), charging for them at cost is the only feasible method of dissemination.

I am sorry to have kept you waiting, but pleased to say I am able to supply you or your friends with as many as you may care for, as the new edition has just been received.

Very truly yours,

F. W. RANE,

*State Forester.*

STATE HOUSE, BOSTON, MASS.



**MASSACHUSETTS FOREST LAND.** — Reduced to desert conditions by repeated fires; remedy, stop possibilities of fires and replant.



EXAMINATION OF WOODLANDS, AND PRACTICAL ASSISTANCE  
GIVEN OWNERS.

The policy of this office in giving assistance to owners of woodland in this State has been continued during the past year, with very satisfactory results. This assistance consists in an examination and report to the owner on the condition of his woodland or potential woodland, and advice looking to the treatment of the same. This advice, other than travelling expenses, is given free to the land owner.

The examinations made in 1908 number 64, outstripping the record of all previous years. The highest previous mark was 47 in 1906, while last year they numbered 37,—an increase of 67 per cent. The acreage is 15,842,—an increase of 86 per cent over that of last year.

Four of these examinations were what are called working plans; that is, the land was surveyed, and a forest map accompanied the report. The written outline included an estimate of the amount of standing timber, its value, the improvement work advised, its cost and the probable results. Two of these were made for private parties, one on a tract of 250 acres and one on a tract of 400 acres. The *chef-d'œuvre* of the year was a forest working plan for the city of Fall River, which covered the watershed of North Watuppa Pond, the city's water supply,—an area of more than 5,000 acres. The city owns 3,000 acres of this land. The fourth working plan is for the town of Westfield, and covers the watershed of their supply in Granville, some 6 square miles. Only the field work of this plan has so far been completed.

These working plans made on the watersheds are not alone useful to the communities for which they are made, showing them how they can handle the lands in their possession to the best advantage, but offer a basis for the study of the effect of forests on water flow. The working plan gives the character of the watershed, its area and the amount of forested and nonforested land. The controlling boards are usually in possession of figures which give the yield of the ponds and streams which constitute the supply. After a

number of watersheds of different character have been studied, some useful comparisons can be made from the accumulated data, and perhaps light thrown on a subject which has not been studied to the extent that one of such importance should be in this country.

A certain amount of "booming" was given to this phase of the work by sending out circular letters to the various State institutions, 15 in all; 5 of these took advantage of the offer and sought advice in regard to their woodland. Circular letters were also sent to the water supply authorities in the various cities and towns, and 5 have asked for examinations; other boards have asked for assistance.

#### *Results of Assistance for 1907.*

Blanks were sent to 25 people who received examinations last year, the object of which was to find out how far the recommendations made were carried out. Concerning the other 12 of the 37 the office was in possession of information which made the sending of blanks unnecessary. It was hoped also that this sign of interest in the work of last year would stir up those that have done nothing.

A summary of the results of this investigation is as follows: out of 37 examinations, 17 were recommended to thin, 20 to plant, 3 to do nothing, and 4 have no cards on file. Of those recommended to thin, 3 did all the work and 6 did part of it; this leaves 8 who have done nothing, or have not reported, which we imagine is much the same thing. On the planting side, 2 carried out all the work as advised, and 10 did something; the remaining 8 did nothing, or have not reported.

From the results of the work as reported for previous years, and from experience gained during the past year, we come to the following conclusions: —

1. That planting excites more interest and is more readily taken up than thinning.
2. That thinnings are increasingly important, as the work of fighting the gypsy moth becomes more widespread.
3. That thinning work is much more likely to be carried

out if the trees to be cut or left are marked by the visiting forester.

4. That elaborate working plans and maps, when made for private parties, result in nothing more being done than would come from an ordinary examination and report, and so should be abolished except in certain cases, when they should be made at the expense of the owner.

5. That, if this co-operative work increases during the present year at a rate approaching that of the last, it will be impossible for one man to accomplish it, so that another technical forester to help in this and other work will be a necessity in the office.

*The New Application Blank for Examinations.*

In order to simplify matters, and thereby get a larger number of our people owning woodlands acquainted with the willingness on the part of the State to assist them, the following new blank was printed and distributed very generously:—

No..... Received.....

**APPLICATION FOR AN EXAMINATION OF FOREST LANDS TO THE MASSACHUSETTS STATE FORESTER, STATE HOUSE, BOSTON.**

The State Forester stands ready at all times to promote the perpetuation, extension and proper management of the forest lands of the Commonwealth, both public and private (1904, chapter 409, section 2).

If you have such lands, and desire an examination of them and advice as to their management, fill out the following blank form and send it to the above address of State Forester.

Upon receipt, this request will be placed on file, and you will be informed, in order of application, approximately when the examination can be made, and a mutual date can then be decided upon.

The only expense the applicant promises to pay is that of travel and subsistence of the State Forester or his assistants, incurred in making the examination.

It is always more satisfactory to personally meet on the property the owner or party most interested, at least when the preliminary examination is made. In this way a definite understanding can be had as to future undertakings, and whether working plans are necessary. Often a preliminary visit to gain knowledge of the problem and give advice on the grounds are all the services needed.

When sending this application in, a brief description of the land will assist us.

With the above understanding, I desire to have an examination made of a tract of land of approximately.....acres, located in the town of....., county of....., State of Massachusetts.

Signed.....

Address.....

Date....., 19 ..

In order to emphasize the willingness on the part of the State Forester to co-operate with all State institutions in doing forestry work on any land that might belong to them, the following letter was addressed to the superintendents or officials, as the case might be, and a copy of the application enclosed:—

MY DEAR SIR:— I desire to call your attention to one of the duties of the State Forester, that is, the examination of lands belonging to any citizen or institution in the State, and the giving of professional advice in regard to its treatment for forestry purposes. There is no charge to the recipient of this advice except the necessary expense of travel and subsistence. This offer applies equally to land now under tree growth or unimproved land that should be.

A great many citizens have availed themselves of this offer, but very few institutions have made any applications for assistance under this law. It is more than probable that you know nothing of this opportunity, and it is for the purpose of acquainting you with it that this letter is sent.

Public institutions which have theoretically at least a permanent existence, are in a better position than private persons to carry on work which requires several years to show results. The State has established this office to bring about improvement of the present wooded area and the reforestation of unproductive land. It should lead the way by carrying out work on its own property.

If your institution has under its charge any wooded or unimproved land, I hope that you will make application to this office for a preliminary examination, after which, if the area is large and the work complex, a complete working plan can be made.

We are very busy at the present time, and cannot take up this work immediately, but if we have it in mind, will be in a position to take it up as rapidly as possible.

Very truly yours,

F. W. RANE,

*State Forester.*



**THE SAWDUST PILE TELLS THE STORY.**—This land should be immediately planted to white pine.



## FOREST NURSERY.

The State forest nursery at Amherst on the farm of the Agricultural College was somewhat enlarged last spring, and, although it has been a very dry season and we had no facilities for watering the beds, they have come through in good shape. We have a stand of white pine, one-year-old seedlings, that is estimated will give over a million trees for future use. Smaller stands of other species of evergreens and deciduous trees are also growing here. This work is self-supporting, and in no instance have trees or seeds been given away.

As in the case of last year, particular pains were again taken this year to assist all persons having had planting examinations made, so that practical results would follow. In this way many plantations were made that otherwise would have remained unplanted.

It is believed that the State can well afford to do even more in nursery work. Commercial nurseries are asking higher prices, and as the demands are constantly increasing and we shall need larger supplies in the future, there can be no mistake in our growing enough to partly supply this demand. When commercial forest nurseries have been in existence long enough, so that we can depend upon getting stock at practical planting prices, we shall not need to do as much. There is a great difference in being able to save from \$1 to \$3 an acre in the first cost of planting, when seedlings are used. When transplants are used, the price is relatively higher.

The following orders were sent out last spring from Amherst: —

NAME.	Address.	Quantity of White Pine.	Quantity of Ash.	Amount.
Prof. J. Tyler, . . .	Amherst, . . .	1,000	—	\$4 00
John A. Cox, . . .	East Brewster, . . .	1,000	—	4 00
Wm. W. Colton, . . .	Dalton, . . .	2,000	—	8 00
Overseers of the poor, .	Palmer, . . .	1,000	—	4 00
N. D. Bill, . . .	Springfield, . . .	—	10,000	45 00
C. H. Thayer, . . .	Hadley, . . .	1,000	—	4 00
Paul C. Rockwood, . . .	Ashburnham, . . .	2,000	—	8 00
G. P. Morse, . . .	West Wareham, .	1,000	—	4 00
G. W. Wheelwright, . .	Wheelwright, . .	5,000	—	20 00
C. L. Hutchins, . . .	Concord, . . .	5,000	—	20 00
C. A. Codman, . . .	Dedham, . . .	10,000	—	40 00
Mrs. L. P. Howe, . . .	Boston, . . .	1,000	—	4 00
Lawrence Minot, . . .	Wareham, . . .	4,000	—	16 00
G. W. Cook, . . .	Barre, . . .	3,000	—	12 00
G. D. Johnson, . . .	Andover, . . .	1,500	—	6 00
E. A. Bowen, . . .	Lakeville, . . .	5,000	—	20 00
Dr. J. E. Briggs, . . .	Segregansett, . .	2,000	—	8 00
R. E. Allen, . . .	Shrewsbury, . . .	1,000	—	4 00
Kennan Damon, . . .	Concord, . . .	7,000	—	28 00
H. S. Cheney, . . .	Southbridge, . . .	5,000	—	20 00
A. G. Brockwalter, . .	North Wilmington, .	1,000	250	5 00
H. M. Killam, . . .	Georgetown, . . .	1,000	—	4 00
E. C. Parker & Co., . .	West Acton, . . .	5,000	—	20 00
L. C. Patterson, . . .	Webster, . . .	5,000	—	20 00
F. S. Clark, . . .	Pittsfield, . . .	200	200	1 65
A. F. White, . . .	East Freetown, . .	1,000	—	4 00
S. I. Bailey, . . .	Hanover, . . .	1,000	—	4 00
B. S. Blake, . . .	Auburndale, . . .	2,000	—	8 00
Taunton Water Works, .	Taunton, . . .	4,000	—	16 00
P. R. Bradbury, . . .	Norwell, . . .	2,000	—	8 00
E. A. Hall, . . .	Cambridge, . . .	2,000	—	8 00
W. P. Bailey, . . .	Wareham, . . .	5,000	—	20 00
G. F. Kenney, . . .	Brimfield, . . .	1,000	500	6 25
E. P. Sherburne, . . .	Roxbury, . . .	— <sup>1</sup>	—	1 00
A. C. Spafford, . . .	Bradford, . . .	1,000	—	4 00
Lawrence Park, . . .	Groton, . . .	1,000	—	4 00
Sanborn G. Tenney, . .	Williamstown, .	1,000	—	4 00
E. P. Williams, . . .	Buckland, . . .	1,000	—	4 00

<sup>1</sup> School order.

NAME.	Address.	Quantity of White Pine.	Quantity of Ash.	Amount.
Baker Box Company,	Worcester, . . .	1,000	—	\$4 00
E. E. Earl, . . .	West Boxford, . . .	1,000	—	4 00
S. D. Charles, . . .	Brooks, . . .	2,000	—	8 00
E. H. Blanchard, . . .	Lindenwood, . . .	1,000	333	6 00
E. G. Childs, . . .	Bondsville, . . .	3,000	1,000	16 50
P. F. Leland, . . .	Holliston, . . .	2,000	—	8 00
H. T. Brookway, . . .	South Hadley, . . .	500	—	2 50
S. E. White, . . .	Winchendon, . . .	1,000	—	4 00
Wm. A. Gaston, . . .	Barre, . . .	3,000	—	12 00
H. L. Frost, . . .	Arlington, . . .	—	3,000	13 50
A. R. Sharp, . . .	Taunton, . . .	—	3,000	13 50
H. L. Frost, . . .	Beverly, . . .	—	2,000	9 00
Park Hill Manufacturing Company.	Fitchburg, . . .	5,000	2,000	29 00
A. L. Hyde, . . .	Southbridge, . . .	800	200	4 50
C. R. Stacey, . . .	Taunton, . . .	— <sup>1</sup>	—	1 00
P. R. Allen, . . .	Walpole, . . .	—	500	2 25
E. A. Smith, . . .	Lowell, . . .	1,000	—	4 00
H. L. Frost & Co., . . .	Walpole, . . .	—	700	3 15
E. W. Breed, . . .	Clinton, . . .	—	2,500	11 25
B. S. Blake, . . .	Auburndale, . . .	1,000 <sup>2</sup>	—	1 50
Total, . . .	. . .	115,000	26,183	\$578 55 <sup>3</sup>

<sup>1</sup> School order.<sup>2</sup> Wild seedlings.<sup>3</sup> This amount was turned over to the State Treasurer.

The following larger orders, for purchasers for whom examinations and recommendations for planting were made, were shipped direct from commercial nurseries:—

NAME.	Address.	Quantity.
Mt. Hermon School, . . . . .	Mt. Hermon, . . . . .	85,000
Nathan D. Bill, . . . . .	Springfield, . . . . .	20,000
Wm. G. Nickerson, . . . . .	Dedham, . . . . .	20,000
A. R. Sharp, . . . . .	Taunton, . . . . .	50,000
Everett Flood, . . . . .	Palmer, . . . . .	10,000
Brockton Water Works, . . . . .	Brockton, . . . . .	30,000
N. I. Bowditch, . . . . .	South Framingham, . . . . .	10,000
P. M. Low, . . . . .	Baldwinville, . . . . .	10,000
Total, . . . . .		235,000

*White Pine Seed.*

NAME.	Address.	Quantity (Pounds).	Amount.
G. W. Wiggin, . . . . .	Boston, . . . . .	1	\$2 00
N. D. Bill, . . . . .	Springfield, . . . . .	25	43 75
C. H. Bonney, . . . . .	Boston, . . . . .	3	6 00
O. C. Cook, . . . . .	Milford, . . . . .	1½	3 00
F. S. Clark, . . . . .	Fitchburg, . . . . .	½	50
G. C. Tanski, . . . . .	West Brookfield, . . . . .	1	2 00
O. L. Howlett, . . . . .	Southbridge, . . . . .	1½	3 00
F. C. Hartwell, . . . . .	Littleton, . . . . .	1	2 00
E. S. Magoon, . . . . .	Barre Plains, . . . . .	1	2 00
F. M. West Company, . . . . .	Springfield, . . . . .	2	4 00
H. E. Hildreth, . . . . .	Harvard, . . . . .	2	3 50
O. H. Skinner, . . . . .	Harvard, . . . . .	½	1 00
G. E. Stone, . . . . .	Amherst, . . . . .	1	1 75
Total, . . . . .		40½	\$74 50 <sup>1</sup>

<sup>1</sup> This amount was turned over to the State Treasurer.

As stated in last year's report, it has been our purpose to see that all persons for whom examinations are made should be assisted directly in getting practical results. One way in which we served to accomplish this last spring was to furnish the seedlings at cost, and what we were unable to furnish from the State nursery were purchased and sent to them.

*Nursery Stock on Hand in Fall of 1908.*

VARIETY.	Age (Years).	Quantity.
White pine seedlings, . . . . .	2	150,000
White pine seedlings, . . . . .	1	1,200,000
Pitch pine seedlings, . . . . .	1	40,000
Norway pine seedlings, . . . . .	2	25,000
White ash seedlings, . . . . .	1	20,000
Chestnut seedlings, . . . . .	1	5,000
Black locust seedlings, . . . . .	1	10,000
Honey locust seedlings, . . . . .	1	12,000
Boxelder seedlings, . . . . .	1	30,000
Horse chestnut seedlings, . . . . .	1	100
		1,492,100
White pine transplants, . . . . .	3	40,000
White ash transplants, . . . . .	3	500
Catalpa speciosa transplants, . . . . .	2	1,000
Maple transplants, . . . . .	2	1,000
Oak transplants, . . . . .	2	500
Total, . . . . .		1,535,100

*Seed on Hand in Fall of 1908.*

	Pounds.		Pounds.
White pine, . . . . .	175	Balsam fir, . . . . .	2
Pitch pine, . . . . .	5	White oak, . . . . .	10 <sup>1</sup>
Red pine, . . . . .	2	Chestnut, . . . . .	25 <sup>1</sup>
Hemlock, . . . . .	2	White ash, . . . . .	10
Red spruce, . . . . .	2	Black ash, . . . . .	10
Norway spruce, . . . . .	2	Rock maple, . . . . .	30

<sup>1</sup> Bushels.**MUNICIPAL FORESTS.**

One of the interesting features of the year was the spontaneous development of an important field of endeavor in forestry undertakings that has come in for a large share of the time of the State Forester's office.

Just at a time when we were planning and hoping for the establishment of more permanent forest reserves, Mayor Coughlin of Fall River, together with his water commissioner and city engineer, called at the office in an official capacity to determine if the State could assist them in converting their water basin about Watuppa Pond into a forest, the suggestion having come to the water commissioner when reading an article which appeared in one of the Boston Sunday papers, on the State Forester's work. The results of this meeting were that the State Forester and his assistant spent a day with the Fall River city officials, made a preliminary report, which was accepted, and then a working plan of the whole watershed, which covers an area of over 3,000 acres, exclusive of the reservoir itself. This work will appear as a publication from this office later in the year.

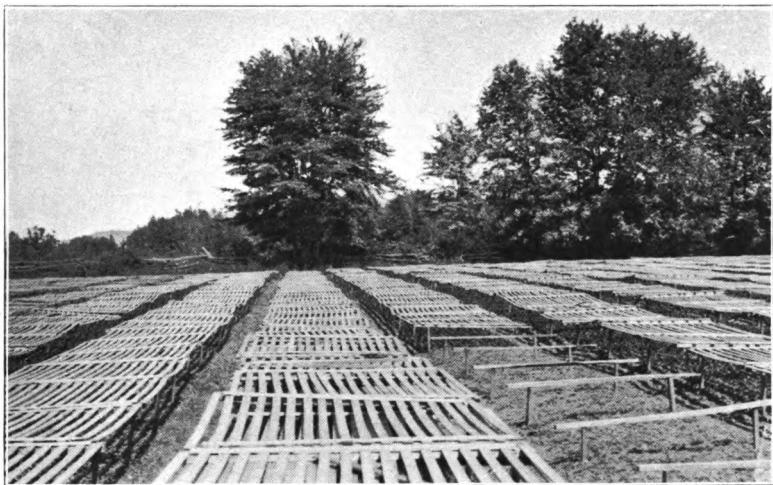
Upon learning of the work at Fall River the town of Westfield applied for a similar examination and plans for its watershed. This report is in progress at the present time.

Seeing that the work would be of equal interest to many other cities and towns, the State Forester wrote all such, with the result that at the present time we have applications on hand for several more, and this department of the office can see plenty of work ahead of it for some time. It may be said that the cities in each instance have been ready to turn over to the State, for its assistance, the help of its engineers and assistants, so that the expense to the State remains relatively low for this work.

The beauty of this work is that, from whatever standpoint one cares to look at it, it is found to be a great benefit. Practically or economically, æsthetically or from the sanitation standpoint, the city is bound to derive great future benefit.

#### PUBLIC LECTURES AND ADDRESSES.

The State Forester has done all this kind of work he possibly could, and keep up with the routine work necessary under the present organization. During the winter months one's whole time could be utilized largely in lecture work on forestry, the demands are so great. As heretofore, the policy has been to accept invitations to address public meetings



**STATE FOREST NURSERY AT AMHERST.**—Over 1,000,000 white pine seedlings at end of first year.



whenever it can be shown that good results are likely to follow. In accepting invitations, the request is made that an audience of at least 100 be guaranteed, if possible.

#### LECTURES BEFORE BUSINESS MEN'S ORGANIZATIONS.

One of the pleasing features of the year was the great interest manifested in forestry by our various boards of trade, merchants' associations, lumbermen's organizations, etc. The State Forester delivered talks on forestry before such organizations in the cities and towns of Fitchburg, Pittsfield, North Adams, Springfield, Winchendon, Bridgewater, Upton, Clinton, and several in Boston, as the Massachusetts Reform and Economic clubs, Lumbermen's and Market Gardeners' associations. Results of these meetings have been very apparent in the great amount of inquiries and requests that have come to the office from this source. It takes business men to do things, and to these organizations the State Forester looks for very much assistance in the future.

#### LECTURES OUTSIDE THE STATE.

The State Forester has been called upon to address various organizations during the year outside the State, some of which were: the Society for the Protection of New Hampshire Forests, at Intervale, N. H.; the Citizens of St. Johnsbury, Vt.; the Society for the Promotion of Agricultural Science, at Washington, D. C.; the American Forestry Association, Washington, D. C.; and the University of Maine, at Orono, Me.

#### THE NATIONAL AND STATE CONSERVATION COMMISSIONS.

The State Forester was chairman of the State delegation appointed by Governor Guild to attend the Conference of Governors, called together by President Roosevelt last May. Later the same committee of three was appointed as the State Conservation Commission, to assist the National Conservation Commission in getting together data relative to the natural resources of the nation. Of course the office of the Massachusetts commission was in collecting Massachusetts data only. This same State commission, headed by Governor

Guild, attended the second meeting of the National Conservation Commission in Washington, D. C., during the week of December 8.

#### THE NATIONAL IRRIGATION AND FORESTRY CONGRESS.

The State Forester was invited to address the above congress at Albuquerque, N. M., September 29 to October 4, on "Municipal Corporation and Private Ownership Forestry Development."

This congress was as usual a very representative occasion, and offered a splendid opportunity to meet men who are doing things. To the acquaintances made at this meeting and that of last year at Sacramento, Cal., are due the interest and courteous treatment given us by western men at the recent hearing before the agricultural committee of Congress at Washington, D. C., the fore part of this month, at which Governor Guild presided. Governor Chamberlain of Oregon, Ex-Governor Pardee of California and President-elect Barstow of the National Irrigation and Forestry Congress, who were in attendance at the Conference on the Conservation of Natural Resources at the time, all prominent in said Irrigation and Forestry Congress, gladly appeared and endorsed our movement for the White Mountain and Southern Appalachian forest reserves.

As alluded to last year, the more one sees of the more arid sections of the west, the better satisfied he is with the future possibilities of New England forestry.

#### MEETING WITH THE STATE FIREMEN'S ASSOCIATIONS.

One of the pleasing occurrences of the year was the opportunity offered through an invitation of the State Firemen's Association to address that body on "Forest Fires and their Prevention," at their annual meeting which convened at Nantucket on September 9 and 10. Not only was the State Forester well received and given an exceptional opportunity to get acquainted with the men who have in charge the great responsibilities of protecting our homes in our cities and towns, but he was able to discuss with these men the impor-

tance of also systematizing and working out similar methods for handling forest fires.

Since attending this meeting and making the acquaintance of so many good men, a great many valuable suggestions and assistance have come to the office; and there is little doubt but that as time goes on very valuable assistance is bound to come from the chiefs of fire departments in regulating and organizing forest-fire fighting methods for effective results.

Our forest wardens and the chiefs of fire departments and their deputies should by all means work together in harmony. Already in many instances both offices are held by one man. Where the offices are separate, a definite understanding and methods of co-operation should be entered into. Both are public servants, and should be public spirited and work together for the benefit of all.

#### PINE TREE BLIGHT.

There probably have been few subjects that have caused more alarm than the so-called pine tree blight, which was so prevalent last year, and is still in evidence, although to a far less degree, this season. As was predicted in last year's report, the trouble was not as prevalent this year, especially in sections where it was very bad last year, as at Winchendon. However, at Greenfield it was worse, if anything. On the whole, for the State, while trees affected last year still showed the effects, and an experienced person could pick them out at a distance, nevertheless they have improved in condition, and many will undoubtedly outgrow this malady.

In order to keep in close touch with the pine tree blight, so that, should it develop still further this season, we might possibly obtain further information for combating it, besides having the assistants and others on the alert for developments, a young man, Mr. Thomas Jones, a recent graduate of the Massachusetts Agricultural College, who had specialized in mycology, was employed for a month. Nothing particularly new was found, other than was reported in the annual report last year.

Early in the season most of the tip growth of the new shoots seemed to be affected, and it was thought that some

young plantations of trees from three to six feet high at Winchendon were more troubled than last year; but a month later it was found that the browning or dying did not extend beyond the first stage, and when the needles were fully out the general appearance was little else than normal.

Undoubtedly more or less white pine trees will be affected from year to year with this trouble; but it is believed that we need to pay little attention to it, other than when a tree is badly affected and is going to die, it should be cut and utilized. The greatest loss comes where pine trees are valued from the æsthetic or landscape-gardening standpoint; and these are not as likely to be troubled, as the chances are they are on better soils, and hence likely to withstand such deprivations.

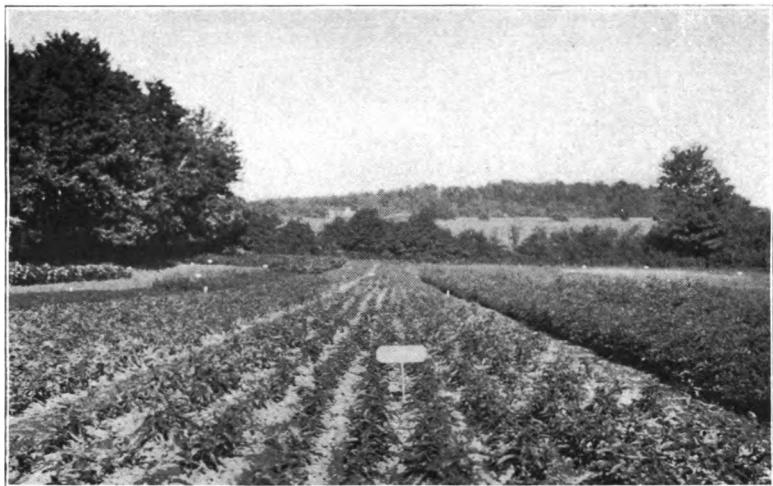
#### FOREST FIRES.

The past season has been a noted one throughout the country for disastrous forest fires. The extremely dry season rendered conditions exceptionally favorable for fires throughout the whole summer season. Exceptionally heavy forest fire losses were reported constantly from all the New England States, New York, Canada and the Lake States.

This is the first year Massachusetts has ever had a definite system whereby reliable data on forest fires have been collected. We are not in a position, therefore, to compare this year's data with those of previous seasons, other than in a general way. The State Forester takes pride, however, in reporting that it is his belief that Massachusetts has suffered relatively less than other States, considering her dense population and previous experiences. When Maine and the Adirondacks and other New England States were having their worst fires, Massachusetts was comparatively free.

It is believed that our new forest warden system saved to the State this year alone far more than people begin to realize. The State Forester has kept one man busy throughout the year, simply attending to the new forest fire regulations and assisting the forest wardens.

During the first part of the season forest warden badges were decided upon, which are numbered consecutively from 1 to 350, and sent out to all wardens. This has assisted,



**PORTION OF STATE FOREST NURSERY AT AMHERST.** — Showing transplant beds.



in that it gives the warden his proper credentials. The number of each badge is kept on file in this office, and thereby any forest warden can be identified. The badges are the property of the State Forester, and held by the wardens only during their services as such.

As alluded to elsewhere, warning forest-fire notices, made of cloth, were supplied to all wardens in large numbers; and they and their deputies took great pains in seeing that these were posted generally throughout the towns, and particularly where there was slash remaining from cut-over lands, etc.

During the very smoky times this office was repeatedly informed from the various wardens that they were exerting themselves and keeping close watch, and even patrolling the towns to minimize the great chances for fire outbreaks. No one could expect a greater loyalty and interest than these newly appointed forest wardens and their deputies have shown, and the State Forester desires here to publicly acknowledge their true worth and fidelity to the State.

It is proposed to publish the data collected on forest fires for the State in a bulletin by itself, a little later on. The following table will be of interest, in showing to what extent and number and of how great damage these fires have been during the year. It may be said also that these fire estimates may be considered extremely conservative. Can any one doubt the needed rational legislation for handling such a parasite upon our veritable future prosperity?

	Unknown.	Loo-motive.	Farmers burning Brush.	Smokers.	Set by Boys.	Hunters.	Berry pickers.	Mis-cellaneous Causes.	Totals.
Forest wardens' reports, number of causes,	337	539	96	111	68	18	11	209	1,379
Reports returned, with damages,	\$58,200	\$23,800	\$15,100	\$23,000	\$2,700	\$5,400	\$1,800	\$42,600	\$172,600
Damages on reports received too late for tabulation by months.	\$14,736	\$4,138	\$2,900	\$5,000	\$800	\$1,600	\$700	\$7,274	\$37,148
Damages estimated on burned area where no figure was returned.	\$17,479	\$4,369	\$2,913	\$5,040	\$800	\$1,603	\$700	\$7,492	\$40,396
Total damages,	\$90,415	\$32,307	\$20,913	\$33,040	\$4,300	\$8,603	\$3,200	\$57,366	\$250,144
Burned area in which damage was reported, by acres,	{ 23.4% 6,491	13.8% 3,840	14.2% 3,958	18.6% 5,163	3.4% 957	6.4% 1,786	6.4% 4,578	16.8% 4,578	27,740
Burned area in which no damage was reported,	1,638	986	994	1,302	238	238	448	1,176	7,000
Burned area not tabulated by months,	-	-	-	-	-	-	-	-	4,596
Total area reported as no damage,	-	-	-	-	-	-	-	-	991
Total acreage reported,	-	-	-	-	-	-	-	-	40,327

## FOREST FIRE POSTERS.

Following the instructions in the statutes, as last year, the State Forester had the abbreviated instructions of the forest fire laws printed on a large paper poster in red and black ink, 18 by 27 inches in size, and distributed them to all railroad stations, post-offices, chairmen of the boards of selectmen and forest wardens. For general use a new, smaller and more practical cloth poster was sent out in large quantities to all forest wardens for use throughout the State. This poster has served its purpose well, and good reports come from every section, which shows our people are taking an interest in stopping forest fires. (See below.)

# WARNING! FOREST FIRES

## EXTRACTS FROM MASSACHUSETTS FOREST LAWS.

**Setting Fire to Growing Wood or Timber of Another.** Punishable by a fine of not more than \$100.00 or by imprisonment for not more than six months. R. L. 208, Sec. 7.

**2. Letting Fire Escape.** Negligently allowing fire to escape from your own land to adjoining land. Punishable by a fine of not more than \$250.00, also liable for damages. R. L. 208, Secs. 8 and 9.

**3. Forest Wardens Not Liable to Arrest for Trespass.** Wardens, Deputies and Assistants, not liable for trespass while acting in the reasonable performance of their duties. Acts 1907, 476, Sec. 6.

**4. Permit to Light Fire in the Open.** In Towns so voting. A permit from the Forest Warden must be obtained to start a fire between April 1 and December 1. The only exception being—that debris from fields, gardens and orchards, or leaves and brush from yards may be burned on ploughed fields by the owners thereof, their agents or lessees, but in every case such fire shall be at least two hundred feet distant from any forest or sprout lands, and shall be properly attended until extinguished. Violation of this provision—Punishable by a fine of not more than \$100.00 or imprisonment for not more than one month or by both such fine and imprisonment. Acts 1908, 209, Sec. 1.

**5. Arrest without Warrant.** The forest warden may arrest any persons found in the act of setting a fire in violation of the provisions of this act. Acts 1908, 209, Sec. 4.

**6. Penalty for Refusing Aid.** Any person between the ages of 18 and 50 years who refuses, without good cause, to assist the Forest Warden or his deputies in the fighting of forest fires is liable to a fine of not less than \$5 or more than 100 dollars. R. L. 32, Sec. 21; 1907, 476, Sec. 3.

**7. Disturbing Notices.** Whoever wilfully tears down or destroys any notice posted under the provisions of this act shall be punished by a fine of \$10.00. Act 1907, 476, Sec. 7.

## FOREST MENSURATION OF THE WHITE PINE IN MASSACHUSETTS.

The above was the title of a publication of this office sent out during the year. The purpose of the publication was set forth in its preface, "Reasons for Publication," as follows: —

This handbook is published by the State Forester that our people in Massachusetts may have at their disposal information as to how they may determine, by simple measurements and the use of tables, the yields, and hence the values, of pine trees, from the commercial or lumberman's standpoint.

The time has come when we should have a better practical working knowledge of forest values. Forest products continue to become more valuable yearly. It is believed that business men and all persons at all interested in forestry matters, as well as lumbermen and farmers, can get much that is of value from the tables and general information contained in this handbook. There is no reason why a person owning white pine growth, whether a small or a large tract, should not be able to determine practically how much lumber it is capable of producing, and hence its value, even before the trees are cut, if he cares to do so. This handbook will assist him in doing this very thing.

Trees are easy of access, and can be estimated with great accuracy. The old idea, that a man must spend a lifetime as an estimator or cruiser in order to determine accurate yields from tree growth, is rapidly passing. The time of guesswork is being replaced by more definite knowledge.

In order to secure the data contained in the tables, the State Forester has had measurements of white pine taken in all parts of Massachusetts by trained men, and the data have been submitted to practical experts as well, so we feel the work is authoritative.

This publication has been well received and apparently much appreciated.

### GOOD ROADS A BENEFIT TO MODERN FORESTRY.

The forward movement and excellent work being carried out in road construction throughout Massachusetts are bound to result in bringing about modern forestry management in many back rural towns, more quickly than many people realize. The farther the forests are from the railroad or mar-

ket, the greater the expense made necessary in operating them. If to disadvantage in distance poor roads be added, it is readily seen that the transportation question alone precludes practising modern forestry. The fact that two to three times as large loads can be drawn on good roads as on poor ones, and in many instances more trips can be made in the same length of time, will convince any practical lumberman or business man of the importance of good highways.

The State Forester is under many obligations to the State Highway Commission for courtesies extended during the year to study the State forestry conditions, by being invited to accompany said commission on their inspection tours, which were made by automobiles.

#### THE TENTH ANNIVERSARY OF THE BILTMORE FORESTRY SCHOOL.

The State Forester was the Massachusetts delegate appointed by Governor Guild to attend the tenth anniversary of the Biltmore Forestry School.

This occasion, which occurred at Biltmore, N. C., November 26, 27 and 28, on the estate of George W. Vanderbilt proved a most instructive and valuable one. As the "American Lumberman" expressed it, "An Extraordinary Outing of Representatives of all concerned with Timber, from the Tree to the Trade." The three days were extremely well planned by Dr. C. A. Schenck, the head of the Forestry School, for getting just the information desired. There were representative men present from every phase of forestry interests and from all over the country, including Canada.

It was an excellent opportunity to see just what can be accomplished in forestry in a comparatively short time, and also to have pointed out and discussed wherein failures have been made.

This occasion marked a new epoch in American forestry, and, without giving further details about the gathering, suffice it to say that the anniversary proved extremely instructive and valuable, from a great many standpoints. The State Forester felt well repaid for the trip.

## CO-OPERATION WITH THE UNITED STATES FOREST SERVICE AND FORESTRY OFFICIALS OF OTHER STATES.

The State Forester wishes here to acknowledge the hearty co-operation that Mr. Gifford Pinchot and his able assistants and forestry officials of the various States have rendered whenever called upon. At the present time co-operative work with the division on forest products of the forest service is going forward, which we believe will prove of great value when finished. This will require some little time yet. It has been a pleasure to be of assistance to the many forest service men who have been compiling data of various sorts for the National Conservation Commission reports throughout the season. The State Forester welcomes all interested in forestry.

## ARTICLES FOR PAPERS ON GENERAL FORESTRY INFORMATION.

During the year there were calls upon the State Forester for some general literature for use in interesting owners of woodland in a few sections. This call came first from an enterprising newspaper man and a lumberman at Greenfield. Thinking the information would be of equal use to all rural sections, articles were prepared from time to time and sent to all papers that could use them to advantage. These articles were used quite generally, and we believe have been of assistance to many. Four of the articles sent out were as follows:—

## HOW MAY THE FARMER ASSIST IN THE REFORESTATION OF NEW ENGLAND.

Forestry, when managed properly, will utilize our millions of acres of land in New England, at present seen on all too many farms scattered in every section, known as waste land, abandoned pastures, sprout lands, barrens, plains, etc., returning them to forest culture.

If modern agriculture has taught us farmers anything, it is that concentration of effort, better culture and modern rotations are what make profitable farms. If an inventory is taken of the average New England farm, it will be found that there are many acres capable of yielding more profit to the farmer if devoted to the forest or

tree crop than used for any other purpose. These acres should therefore be converted to forestry as rapidly as possible. If each farmer will act accordingly, it may be only a matter of a comparatively short time when New England would be blessed with well-balanced rural conditions. The State Forester, agricultural colleges and forestry schools of various New England States are ever ready to assist and advise in forestry work.

The same culture that will return saw logs to our mills, make work for our country folk in winter, replenish our town treasuries, repaint the old red schoolhouse, pay the sexton to again ring the country church bell, make better roads, and, in short, return the former substantial livelihood of country life, will also conserve moisture, protect and enrich the soil, give an equitable climate, and return to New England the natural beauty we all would love so much to see.

This is a seed year for the white pine in Massachusetts, and it may be elsewhere. Let each farmer collect some cones before they open, which is very shortly, then extract the seeds and plant them next spring in a bed in the garden. In two years' time he will have enough seedlings, if they are properly cared for, to set out many acres. We must learn to plant and care for our forest lands in the same way we do our better tillable soils, and they then will bring proportional yields of profit. The beauty of the whole forestry problem of New England is that in its practical solution it not only results in economic forestry, but solves the aesthetic side as well. It is entirely wrong to think that trees should never be cut. Lumbering is as important to successful forestry as is the digging of potatoes or the harvesting of any crop when it is ripe. The same essentials of culture, also, must be understood in getting maximum returns in the one case as in the other.

F. W. RANE,  
*Massachusetts State Forester.*

#### HOW TO COLLECT AND USE WHITE PINE SEED.

White pine seeds sell at \$4.50 retail, \$2 in large lots, in Boston this summer, and the seeds of some other evergreen trees are still higher. Every owner of woodland with matured pines is in a position to take advantage of these almost fabulous prices, for the time has arrived when the pine cones should be picked. The white pine cones containing the seeds are ripe, and should be picked at once. This dry weather will open the cones before many days, and the seeds will drop out and scatter to the four winds, almost a total loss, while prudent lumbermen all over the country are paying high prices for seeds picked elsewhere. The market has to be supplied; it fixes a price that will produce the goods. If the seeds cannot be obtained at \$4.50 per pound, they will go higher, until the farmers go into the business of seed picking or give away their prospects to

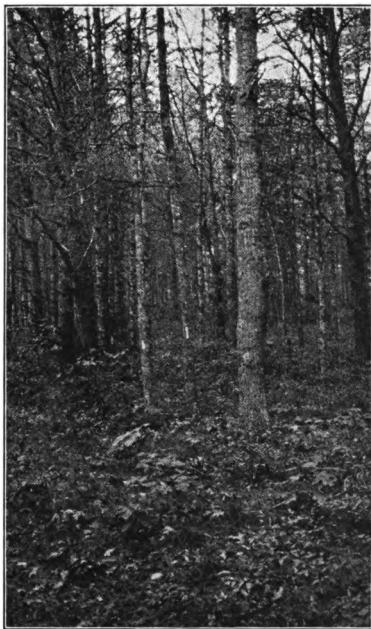
commercial pickers. Moreover, the revival of interest in forestry is so marked in Massachusetts this year that it points to reforestation on a broad scale in the near future, and this will be attended by an increasing demand for the white pine seed. Tree owners who are alive to their prospects will prepare for this demand by saving this year's crop, since the white pine seed will retain its vitality for several years, if given normal conditions,—not too moist or excessively dry.

There is no time to lose this year, nor time to make elaborate preparation for systematic picking. Collect the seeds somehow, by the means that first suggest themselves, and the market will turn them into cash. One way is to run a long ladder up the tree; another is to go into the sections where lumbering is going on, and collect the cones as the trees are felled. Boys may climb up with small bags thrown over their shoulders and pick from the large branches without difficulty, about the same as apples are picked. After the cones are gathered, they may be dried where squirrels and mice are kept from them, and then thrashed until the seeds fall out. The practice of using a bag to put cones in is convenient, as they may be flailed in the bag during spare moments, and the seeds fall out where they are readily separated from the waste.

To turn this waste crop into ready cash is not the only inducement in store for the land owner. It makes reforestation so comparatively inexpensive, producing the seed at the cost of cheap labor, instead of at \$4.50 per pound, that there no longer will then be good reason for allowing waste land to remain idle and non-productive. Under its new policy the State of Massachusetts gives direct aid and counsel to any land owner who desires to seed his waste land. Communication on this subject may be established with the Massachusetts State Forester, Prof. F. W. Rane, State House, Boston, and he will be pleased to meet the farmers and to give practical advice. He says that of the vast amount of lumber used in Massachusetts probably 95 per cent. is imported from other New England States, from the west and from the south. Massachusetts certainly is capable of growing more than 5 per cent. of the lumber it uses; in fact, it is destined to become a lumber State that will closely approximate its consumption with its production, and the production of a seed crop at reasonable cost is the first important step in this movement.

#### AN OPPORTUNITY TO REFOREST WASTE LANDS.

Reforestation is so vital to Massachusetts and to her country population that it will be placed on a systematic basis in the near future. Preparations are now being made, under authority of an act of the Legislature of 1908, appropriating \$5,000 for this year and \$10,000 annually thereafter. With this money the State proposes to buy and reforest idle land, and has already addressed itself on the subject



**A PINE STAND AT PLYMOUTH MARKED  
FOR THINNING.**



**THE SAME STAND AFTER THINNING.**



to the selectmen and land owners throughout the Commonwealth, with most promising results.

The proposition is arousing attention everywhere. Hundreds of acres of waste land have been offered to the State at nominal cost, a considerable portion of it being offered as a free gift. Such overtures have come from West Brookfield, Spencer, North Ashburnham, Hubbardston, West Tisbury, Westford, Sharon, Gardner, Oxford, Winchendon and Sandwich. A business concern has pledged itself to donate 100 acres of land in southern Massachusetts, and an individual in Hampshire County has come forward voluntarily with an offer of 300 acres. This movement among land owners to turn over their idle property to the State, brisk at its very inception, substantiates the general supposition that there is in Massachusetts a vast acreage of land that has become unprofitable through indiscriminate and unbusinesslike lumbering. It shows, further, that the owners of this property have lacked the incentive, or the means, or the inducement, to tie up their capital on soil where the returns are so remote. Now comes their opportunity to let public capital develop their land and restore it to a paying condition on better terms than private effort could do; and many of them are quick to see that this is a wise policy, even if it takes away conditionally their title to the property. On these terms the State is getting a wide choice of land, and when it has registered enough to permit of proper selection, the actual work will begin. There seems to be no doubt now about the ability of the forest department to get all the land it can handle.

While the deed in these transactions passes the land over to the State, it provides that the original owner may repurchase within a stipulated period, at the price he received plus the money spent on improvement and 4 per cent. interest. In all probability the re-planting can be done by the State at less cost than by private effort, because the State has the work reduced to a science, and a corps of trained men to execute it. Not only are individuals accepting this proposition, but townships have taken it under consideration, with a view to turning over to the State sections of poor farms and watersheds for the planting of trees.

Both in accepting free and in buying land, the State will give preference to tracts situated along highways, where the new plantation may serve the dual purpose of restoring the lumber stock and demonstrating to the public how the work should be done.

#### THE COLLECTION AND USE OF OTHER FOREST TREE SEEDS THAN WHITE PINE.

Now is the time to collect certain forest tree seeds. One crop of the forest is gone,—the white pine,—and another is ready for the harvest. In years gone by the pine seed has been wasted in Massachusetts; it was wasted this year, too, but it attracted more attention

than in the past, and the reports from various parts of the State show that more was collected than is usual. For instance, a man in Winchendon has collected 100 pounds of clean seeds this fall, employing boys to pick the cones for him, and he netted at least \$100 on the job. Massachusetts could be made to supply its own seed for reforestation, and it is squandering a valuable product so long as it does not. The rebuilding of our forests is of such vast importance that it is the first subject to be taken up at the conference of New England Governors soon to be held in Boston. Land owners have an excellent opportunity this fall to provide themselves with the seeds of hardwood trees, such as the white ash, the rock maple, the hickory, the chestnut and the beech tree. The picking should begin at once, and it should be completed before the second week in November.

On the white ash, for example, the leaves have fallen off and the seed remains on the tree; they are about two inches long, and are provided with wings, hence are easily seen and reached. A medium-sized tree, about as large as an ordinary apple tree, may yield about 20 pounds of seed, retailing at about \$1 per pound. Almost any other crop of equal value would be taken care of, but this one, as a rule, is allowed to go to the winds. It can be harvested into a bag without much difficulty, either by shinning the tree or raising a ladder. There is a good demand for white ash. The seed of the rock maple has about the same commercial value; it is easier to gather, because the limbs on the tree hang low, and it will remain on the tree two or three weeks longer. How to keep the seeds of the white ash and the rock maple over winter is a problem that requires some attention, but it is not difficult. It is only necessary to dig a hole in the ground some feet deep and sink a box into it; in the bottom of the box put a layer of sand, and then spread a layer of seed 5 inches thick; cover this with 2 to 3 inches of coarse sand, and repeat the layers until the box is filled or the supply exhausted. Then cover the box about 1 foot deep, to prevent the contents from freezing, and the stock will keep until next April, when it should be taken up. Kept thus during the winter it is ready for planting in the spring, and should be set half an inch deep in rows about 1 foot apart. In one year the plants will be large enough to transplant to the forest where they are to remain.

The first substantial frost will open the burrs on the white oak, the chestnut, the hickory and the beech, and the seeds will drop to the ground, where they can be picked without any difficulty. The acorn is worth about \$2 a bushel, the chestnut 15 cents a quart and the hickory nut \$3 per bushel. They are layered for the winter in the same way as the white ash and rock maple, and in case of only a small quantity the most serviceable method is to sink a 2-foot tile into the ground and fill it with layers of sand and nuts, stretching a

wire netting over the top, to keep the squirrels out. The pitch pine and Norway pine cones will open almost any time, and should be picked at once, before they open, if this year's crop is saved. The Massachusetts State Forester is aiding in every possible way to accomplish results; let us all do our part.

The following very complete and valuable work accomplished by the Metropolitan Water and Sewerage Board in practical forest planting is published in this, the State Forester's report, by permission of said Board, in order that the data may be put into the hands of our people, who will find it of great value in demonstrating definite results:—

**FORESTRY WORK IN CONNECTION WITH THE CONSTRUCTION OF THE  
WACHUSETT RESERVOIR.**

In order to treat comprehensively the work as it has been carried on, it will be found advantageous to divide the subject into five branches, namely: general; nurseries; plantings; improvement thinnings; fire protection.

*General.*

The work of reforestation was begun in 1898 by the preparation of two nurseries for the raising from seeds of both coniferous and deciduous seedlings, to be planted on such of the lands owned by this Board as were not already covered with a timber stand of some description.

The first field planting was made in the spring of 1902, when about 175 acres were planted, and since that time plantings varying in size from 50 to 200 acres have been made every spring and fall.

The results obtained have been exceptionally satisfactory as far as the conifers are concerned, there being approximately 90 per cent. of the seedlings planted which have lived.

The deciduous seedlings raised in the nursery have in almost every case failed completely after being transplanted into the field. This failure was probably due to the character of the soil in the nursery.

Altogether, there have been planted about 1,330 acres with about 1,850,000 trees, made up of 948,000 conifers and 902,000 hardwoods, of which about 90 per cent., or 853,000 conifers, and 7 per cent., or 63,000 hardwoods, are living at present.

*Nurseries.*

There are two nurseries, one on either shore of the reservoir, having an aggregate area of 8 acres.

The one on the north shore, containing 4.3 acres, is used for hardwood or deciduous seedlings, and was originally arable or grass land,

so that no great amount of preparation was necessary to make this area suitable for nursery purposes.

The one on the south shore, containing 3.7 acres, is used for the raising of coniferous seedlings. This area was originally covered with a white oak and chestnut stand about fifteen years old, so that a large amount of work, consisting of clearing, grubbing, plowing and harrowing was necessary to prepare the area for nursery uses. This work cost about \$200 per acre.

The nursery work, which consists of preparing the ground, sowing the seed, caring for the seedlings by watering, mulching, screening and weeding the first year, and transplanting, watering, screening and weeding the second and third years, costs \$1.50 per 1,000 trees for the first year and \$1.60 per 1,000 trees for each succeeding year.

#### *Plantings.*

The seedlings, having been at least two seasons in transplant rows, are now ready for their final planting into the field. Planting gangs composed of from 25 to 30 men are employed on this work, 4 or 5 of whom are engaged in the nurseries preparing the trees for the field, which work involves taking the trees from the transplant beds, pruning the roots, sorting, counting, puddling and transferring to the field, while the remainder are engaged in the actual planting process. The maximum rate of planting acquired by an experienced gang under ideal conditions was 1,000 trees per man per nine-hour day.

Spring plantings are made immediately after the frost leaves the ground, and fall plantings before it enters.

Previous to the fall planting of 1906 the general type of planting was white pines, spaced 10 by 10 feet, with some hardwood filler, making the trees 5 feet apart each way. The above-mentioned type was abandoned in 1906 because of the almost complete failure of the hardwoods, and solid white pine stands, the trees spaced 6 by 6 feet, have been planted since that time.

In order to have an effectual screen along the forested portions of the shore of the reservoir, which would prevent the foliage from the deciduous trees from being blown into the reservoir, three rows of white pines, spaced 6 feet apart each way, and two rows of arbor vitæ, 2 feet apart, trees 3 feet apart in the rows, have been planted on the back half of the 50-foot reservoir margin. The greater proportion of the arbor vitæ have failed, probably because of having been planted in the field when too young (two or three years old) to endure the severe exposure which prevails along the shores of the reservoir.

#### *Improvement Thinnings.*

Under ideal conditions the trees require no care after having been planted in the field; but experience has shown that in pasture or brush land, where the common gray birch grows naturally, and in

sprout or scrub land which has been underplanted, it is necessary to thin out and trim up the hardwoods in order to prevent too much shade and the destructive thrashing of the tops of the pines. This process, termed "improvement thinning among planted trees," costs about \$6 per acre.

In the original timber stands the policy has been to take out the mature, undesirable or weak trees, thereby improving the stand by giving more space and air to the strong, hardy specimens. This class of work costs about \$20 per acre, but there is a considerable revenue from the wood cut, which in some cases has been sufficient to make the work pay for itself.

*Fire Protection.*

Among the greatest dangers to the forests are fires, and in order to prevent their spreading to or from abutting property, and to provide a line of defence on which to fight them, a fire guard 40 feet wide has been cut around the entire outside limit of the marginal lands of the reservoir. There is also a network of forest roads 15 feet wide throughout the reservation, which acts as supplementary fire protection. The brush and weeds are cut from these two protective systems once every year.

A double furrow has been plowed along that portion of the fire guard where there was no stone wall, to check the advance of creeping fires from neighboring property.

On holidays and Sundays, during the dangerous seasons of the year (early spring and late fall), men armed with fire extinguishers patrol the reservation to further protect it from the ravages of forest fires.

Thus far no serious fires have occurred, though several have started which would have caused great damage but for the effectual protection given.

*Table of Work accomplished to Jan. 1, 1909.*

Total area of nurseries (acres),	8
Total area planted (acres),	1,330
Total number of trees planted: —	
Coniferous,	948,000
Deciduous,	902,000
Total length of reservoir margin planted (miles),	32
Total length of fire guard cleared and maintained (miles),	20.8
Total length of forest roads cleared and maintained (miles),	30
Planted area thinned (acres),	488
Original timber stands thinned (acres),	209

*Table of Costs (Wage Rate, \$1.75 per Eight-hour Day).*

Nurseries: —

Clearing nursery on south shore,	\$200 00 per acre.
Maintenance of nursery, first-year seedlings,	1 50 per 1,000 trees.
Maintenance of nursery, second and third year seedlings,	1 60 per 1,000 trees per year.

## Plantings: —

Clearing areas preparatory to planting, . . . . .	\$4 00 per acre.
Transplanting seedlings from nursery to field, . . . . .	5 20 per 1,000 trees.
Transplanting seedlings from nursery to field, . . . . .	5 50 per acre (6 by 6 feet planting).

## Improvement thinnings: —

Among planted trees, . . . . .	6 00 per acre.
In original timber stands, . . . . .	20 00 per acre.

## Fire protection: —

Clearing marginal fire guard 40 feet wide, . . . . .	150 00 per mile.
Maintaining marginal fire guard, . . . . .	27 00 per mile per year.
Clearing and grading forest roads 15 feet wide, . . . . .	120 00 per mile.
Maintaining forest roads, . . . . .	8 00 per mile per year.
Maintaining fire patrol, . . . . .	95 00 per year.

*Reforestation.—Summary of Costs (Wage Rate, \$1.75 per Eight-hour Day).*

ITEMS.	Per 1,000 Trees planted.	Per Acre planted.
Preparing nurseries, . . . . .	\$0 40	\$0 56
Seedlings (one year), . . . . .	1 50	2 09
Transplants (two years), . . . . .	3 18	4 42
Preparatory clearing, . . . . .	2 88	4 00
Field planting, . . . . .	5 20	5 50
Clearing 40-foot fire guard, . . . . .	76	1 06
Clearing 15-foot forest roads, . . . . .	1 00	1 35
Maintaining 40-foot fire guard (per year), . . . . .	14	19
Maintaining 15-foot forest roads (per year), . . . . .	06	09
Maintaining fire patrol, . . . . .	02	03
Improvement clearing, . . . . .	4 30	6 00

The foregoing table shows that it costs \$14.92 per 1,000 trees, or \$18.98 per acre (1,390 trees per acre), to raise the trees from seed, prepare, plant and protect the lands planted through the time of the final planting in the field; that it costs \$0.22 and \$0.31 per year respectively to maintain efficient fire protection; that it costs \$4.30 and \$6 respectively for an improvement thinning, which will probably have to be made twice during the first ten years, after which time the trees should care for themselves.

Yours very truly,

HENRY H. SPRAGUE,  
*Chairman.*

E. R. B. ALLARDICE, superintendent in charge Wachusett department; DEXTER BRACKETT, chief engineer of water works.

## ASSISTANTS.

The assistants and employees of the State Forester have practically remained the same throughout the year, and it is a pleasure to compliment them on their fidelity and earnest endeavors in promoting and advancing the State work.

Mr. H. O. Cook, M.F., has done valiant service, particularly in technological lines, as contained in the publication "Mensuration of White Pine," in numerous examinations, etc.

Mr. R. S. Langdell, who has charge of the nursery work and is assisting greatly in the reforestation work, is ever hustling and giving splendid satisfaction, as the nursery and reforestation reports show.

## EXPENDITURES AND RECEIPTS.

In accordance with section 6 of chapter 409 of the Acts of 1904, as amended by the Acts of 1907, chapter 473, section 2, the following statement is given of the expenditures for the year ending Nov. 30, 1908:—

Salaries of assistants, . . . . .	\$3,318 55
Travelling expenses (not included in co-operative fund), . . . . .	678 89
Stationery and other office supplies, . . . . .	379 30
Printing, . . . . .	2,209 78
Postage, . . . . .	711 99
Express, . . . . .	175 40
Instruments, . . . . .	11 34
Miscellaneous, . . . . .	89 25
Nursery, . . . . .	2,361 73
	<hr/>
	\$9,936 23
Balance unexpended, . . . . .	63 77
	<hr/>
Total appropriation, . . . . .	\$10,000 00

*Reforestation Account.*

Seedlings, . . . . .	\$3,495 79
Express, . . . . .	597 73
Travelling, . . . . .	61 35
Land, . . . . .	759 00
Tools, . . . . .	82 58
	<hr/>
	\$4,996 45
Balance unexpended, . . . . .	3 55
	<hr/>
Total appropriation, . . . . .	\$5,000 00

There was realized from the sale of seedlings \$578.55, and for seeds \$74.50, total \$653.05, which amount has been turned over to the Treasurer and Receiver-General; there was also received from the sale of publications \$153.83, which has also been turned in to the Treasurer and Receiver-General, making a grand total of \$806.88. If to this amount is added the amounts unexpended, \$67.32, we have \$874.30 as a credit for the year.

In accordance with section 5 of the above-named chapter, the following statement is given of the receipts for travelling and subsistence:—

*Lectures.*

Jamaica Plain Unitarian Church, Jamaica Plain, . . . . .	\$1 02
Fitchburg Merchants' Board of Trade, Fitchburg, . . . . .	5 00
The Thursday Club, Brookline, . . . . .	55
Merchants' Association, Pittsfield, . . . . .	10 50
North Adams Merchants' Association, North Adams, . . . . .	9 91
Women's Club, Clinton, . . . . .	2 00
Farmers' Institute, Ashfield, . . . . .	9 70
Worcester Grange, Worcester, . . . . .	3 00
Farmers' Club, Franklin (paid by club).	
Wellesley and Needham Farmers' and Mechanics' Club, Wellesley, . . . . .	1 00
Winchendon Citizens, Winchendon, . . . . .	5 00
State Board of Education, Lunenburg, . . . . .	4 93
Bridgewater Commercial Club, Bridgewater, . . . . .	3 50
Waban Women's Club, Waban, . . . . .	—
Pomona Grange, Foxborough, . . . . .	2 25
Women's Club, Wellesley Hills, . . . . .	56
Institute of Technology, Boston, . . . . .	85
Warren Grange, Warren, . . . . .	4 80
Village Improvement Society, Marion, . . . . .	2 50
Women's Club, Lynn, . . . . .	50
Yarmouth Camp Meeting, Yarmouth, . . . . .	3 00
Cochituate Grange, Cochituate, . . . . .	1 00
Springfield Pomona, Wilbraham, . . . . .	4 75
Beverly Improvement Society, Beverly, . . . . .	1 00
Sunderland Grange, Sunderland, . . . . .	4 50
Farmers' Association, Upton, . . . . .	2 50
Westwood Grange, Westwood, . . . . .	2 97
Board of Trade, East Bridgewater, . . . . .	2 00
Pomona Grange, Berlin, . . . . .	2 50
Pomona Grange, Westfield, . . . . .	5 50
South Weymouth Grange, South Weymouth, . . . . .	75

Marlborough Grange, Marlborough, . . . . .	\$2 50
Beacon Club, Waban, . . . . .	-
Women's Club, Norwood, . . . . .	75

A list of the visits made, the area of woodland involved and the receipts for expenses are as follows:—

*Examinations of Woodlands.*

NAME OF OWNER.	TOWN.	AREA (ACRES).	EXPENSE.
Aberthaw Construction Company, . . . . .	Phillipston, . . . . .	211	-1
Allen, Philip R., . . . . .	Walpole, . . . . .	2	\$1 60
Bridgman, H. F., <sup>2</sup> . . . . .	Shirley, . . . . .	15	3 05
Bryant, E. A., . . . . .	Dover, . . . . .	75	60
Bates, Gen. A. E., . . . . .	Windsor, . . . . .	1,000	5 00 <sup>3</sup>
Bartlett, G. M., . . . . .	Templeton, . . . . .	80	2 50
Bird, C. S., . . . . .	Walpole, . . . . .	60	60
Beebe, Miss E., . . . . .	Wilbraham, . . . . .	400	1 80 <sup>3</sup>
Cole, E. E., . . . . .	Scituate, . . . . .	6	-1
Hospital School, <sup>2</sup> . . . . .	Canton, . . . . .	65	1 10
Dennison, H. S., . . . . .	Framingham, . . . . .	100	1 00
Dunbar, E. P., . . . . .	West Bridgewater, . . . . .	8	90
Edwards, George, . . . . .	Middleborough, . . . . .	100	1 25
Edson, C. F., . . . . .	Wilbraham, . . . . .	35	-4
Fisher, L. N., . . . . .	Walpole, . . . . .	7	10
Farnsworth, R. M., . . . . .	Lancaster, . . . . .	150	1 75
Fall River Reservoir Commission, . . . . .	Fall River, . . . . .	3,000	52 85
Griswoldville Manufacturing Company, . . . . .	Colrain, . . . . .	100	4 90
State Colony for Insane, . . . . .	Gardner, . . . . .	600	2 90
Hall, A. N., . . . . .	Dunstable, . . . . .	25	1 30
Hall, A. H., . . . . .	Leominster, . . . . .	3	-4
Hayward, E. L., . . . . .	Easton, . . . . .	4	1 00
Harvey, W. A., . . . . .	Dover, . . . . .	160	-1
Holton, S. S., . . . . .	Lexington, . . . . .	40	30
Holyoke Water Board, . . . . .	Holyoke, . . . . .	2,500	6 70
Howe, L. P., . . . . .	Bolton, . . . . .	7	3 50
Hudson Water Board, . . . . .	Hudson, . . . . .	30	1 00
Hutchins, Rev. C. L., . . . . .	Concord, . . . . .	25	80
Kilburn, W. G., . . . . .	Lancaster, . . . . .	7	1 80
King David Lodge, . . . . .	Taunton, . . . . .	17	1 65
Leland, E. F., . . . . .	Andover, . . . . .	200	6 00

<sup>1</sup> Paid by owner.

<sup>2</sup> Made two visits.

<sup>3</sup> Part expense.

<sup>4</sup> No expense.

*Examinations of Woodlands — Concluded.*

NAME OF OWNER.	TOWN.	AREA (ACRES).	EXPENSE.
Leominster Water Board, . . .	Leominster, . . .	40	\$1 70
Lyman, R. W., . . .	Belchertown, . . .	50	1 00 <sup>1</sup>
Means, Rev. O. W., . . .	Brookfield, . . .	250	2 70
Medfield Insane Asylum, . . .	Medfield, . . .	—	1 10
Payson, W. E., . . .	Norton, . . .	3	1 20
Pease, Miss Laura, . . .	Middleborough, . . .	25	— <sup>2</sup>
Plymouth Water Board, . . .	Plymouth, . . .	40	— <sup>2</sup>
Randall, C. A., . . .	North Dana, . . .	30	— <sup>2</sup>
Rutland Sanatorium, . . .	Rutland, . . .	100	2 10
Seaver, Allyn, . . .	Wilbraham, . . .	127	1 80 <sup>1</sup>
Sedgwick, Alexander, . . .	Stockbridge, . . .	300	6 00 <sup>1</sup>
Snow, R. K., . . .	Wayland, . . .	30	60
Stevens, Chas., . . .	Sudbury, . . .	5	1 25
Stone, C. A., . . .	Plymouth, . . .	200	1 50
Symington, R. B., <sup>3</sup> . . .	Plymouth, . . .	10	3 20
Thayer, R. P., . . .	South Hadley, . . .	80	2 00 <sup>1</sup>
Walpole High School, . . .	Walpole, . . .	20	— <sup>2</sup>
Westfield Water Board, . . .	Granville, . . .	1,000	20 00
Worcester Insane Colony, . . .	Grafton, . . .	500	1 70
Whitney, W. M., . . .	Winchendon, . . .	175	2 65
School for Feeble-minded, . . .	Waltham, . . .	45	— <sup>2</sup>
School for Feeble-minded, . . .	Wrentham, . . .	15	1 20
Wyman, H. A., . . .	Lakeville, . . .	400	1 60
Lawrence, Dr., . . .	Lexington, . . .	20	40
Dean, Wm. M., . . .	Taunton, . . .	200	— <sup>2</sup>
Sharp, A. R., . . .	Taunton, . . .	600	— <sup>4</sup>
Pittsfield Water Board, . . .	Pittsfield, . . .	1,500	— <sup>4</sup>
North Adams Water Board, . . .	North Adams, . . .	125	— <sup>4</sup>
Prince, F. H., . . .	Wenham, . . .	800	— <sup>4</sup>
Prescott, C. W., . . .	Concord, . . .	70	— <sup>4</sup>
Burgess, J. K., . . .	Dedham, . . .	50	— <sup>4</sup>
Total area, . . .	. . .	15,842	—

<sup>1</sup> Part expense.<sup>2</sup> No expense.<sup>3</sup> Made two visits.<sup>4</sup> Paid by owner.



**A STAND OF WHITE PINE AT SUDBURY, MASS.—**  
This was a field only partly planted by filling in the blank or open spaces when young; now about thirty-eight years old, and estimated to cut 38,000 feet B. M. per acre. One thousand feet per year of white pine is a fair return from cheap lands. Stumpage is worth \$7 to \$10 per thousand.



WHAT THE GENERAL COURT IS ASKED TO CONSIDER AT PRESENT.

*I. To amend the Reforestation Law, so that the State Forester may not be limited to purchasing Forty Acres in Any One Tract.*

While, of course, the purpose of the law in stipulating the number of acres was to spread the work out broadly and make it an object lesson of educational value, nevertheless there are often many tracts that exceed this acreage, and it is but natural that the whole tract should be handled at the same time, and thereby much more economically. Where a few acres overruns the stipulated number, it requires an extra survey, and adds greatly to the expense as well in making out the transfer papers. This amendment would be of great assistance in the practical working out of this law.

*II. A State Forest Survey.*

To authorize a forest survey of the State, in order to determine just what lands should be retained in forests, as an economic factor of the State's conservation policy. With a definite knowledge of conditions mapped out, the State Forester will be greatly aided in the work of reforestation, and have a guide to future endeavor in State work. The survey could be carried out in connection with the working plans department of the State Forester's office, by simply appropriating a certain amount for employing assistance to do the work. Another way of handling the project would be for the State to pay one-half of the expense of such a survey, provided the counties pay one-half. This work need not be accomplished in one year, but taken up in a systematic way, spending only a nominal sum each year until it is finished.

Our people realize the great importance of conserving the forests in the White Mountains and southern Appalachians, and they undoubtedly recognize equally the importance of conserving the forests within our own State, although they are not on so large a scale.

### *III. Uniform Forestry Legislation.*

It was the consensus of opinion, as the result of the first New England conference called by the Governors of the New England States, that much mutual benefit could come through uniform legislation. Through a call by the Massachusetts State Forester, the New England State Forestry officials met at the State House, Boston, on December 4, and decided to make the following general recommendations for consideration by their respective State Legislatures:—

- (a) *Resolved*, That the cost of extinguishing fires known to be set by railroads shall be paid for by said railroad corporations.
- (b) *Resolved*, That when forest fires are caused by individuals, the individuals causing said fires shall be liable for all expense of their extinguishment.
- (c) *Resolved*, That it is the opinion of the committee that the present Massachusetts forest fire law relative to giving permits for the burning of brush and setting of fires out of doors should be adopted for all the States.
- (d) *Resolved*, That we believe in legislation to regulate the management of forest lands, and that a permit be required by operators of portable mills from the State forest officials.
- (e) *Resolved*, That there should be a law in each State, similar to the Vermont law, authorizing the Governor to issue a proclamation, when it is thought advisable by the State forest official, prohibiting sportsmen and others from traversing the woods unnecessarily.
- (f) *Resolved*, That there should be definite understandings with the railroads and State forestry officials as to the dangerous sections of the railroad lines traversing the respective States, so that patrols by the railroads may be established whenever it is thought advisable by the State.
- (g) *Resolved*, That there should be a law to regulate the taking of firearms into the woods during the closed season on game.

### *IV. Increased Appropriation needed.*

The State Forester feels it none other than his duty to ask for an increased appropriation for his work this coming year.

If examined carefully, it can be shown that the expenditure for reforestation and nursery work, while in itself an expenditure by the State, must ultimately come back to the

State treasury with interest. This, therefore, eliminates as a real out-go from the State treasury fully one-half of the annual appropriation made for this office.

We are convinced that the enactments passed in recent years are proving their value. Now that we have our corps of 350 forest wardens appointed and in the harness, let us give them every legitimate worthy support possible. With an early convention of the forest wardens, I am sure the results to come from such would be regained financially an hundred fold in a single year. The State Forester could utilize the services of forest wardens in various towns to a great advantage along many mutual lines, were there more funds that would permit it. Where such work is left to the towns, many are likely to be indifferent, while, if awakened by a general current of live endeavor on the part of the State, they catch the spirit and realize the importance of self-preservation. As soon as we have our forest wardens thoroughly familiar with the great good to be accomplished, they are going to impart its importance to the towns they represent.

As I stated last year, the State Forester hopes to so educate his wardens that they will become in a sense town foresters, who shall keep the importance of forestry and how to perpetuate and manage the same practically directly before the people. With such an organization, when gypsy moths, pine blight, fires, etc., are troublesome, or, on the other hand, when people desire to reforest lands or thin and give proper care to their wood lots, in either case here is a man to whom they may look for advice. Is not the State making an expenditure here that will ultimately bring a great reward?

In establishing workable State forest policies, as in every other new undertaking that requires an expenditure of money, we are inclined to be conservative. When we realize, however, that many of our small towns are paying large sums annually simply for fighting forest fires, which expenditure is a constant drain and too often a total loss, to say nothing about the actual loss in present and future forest products, I am sure that business and thinking men can see that it is simply a losing proposition not to definitely and at

once spend a few dollars that will make it possible to save millions in the future.

The State Forester could spend to great advantage in the coming year \$25,000 in systematizing and furthering the forestry interests throughout the Commonwealth. Of this sum, \$10,000 is already provided for in the reforestation act of last year. The regular appropriation for the running expenses and general work of the State Forester for the past year was \$10,000; therefore, the appropriation asked for would be an increase of \$5,000.

#### SUMMARY OF RECOMMENDATIONS.

- (1) That the reforestation law be amended so as not hereafter to limit the purchases of land to 40-acre tracts.
- (2) That a State forest survey be established, and funds for its accomplishment be provided.
- (3) That the six resolutions of the New England State forestry officials be considered with a view to their adoption for uniform forestry laws. One recommendation is already in the Massachusetts statutes.
- (4) That the appropriation for the State Forester's work be \$25,000 for this year, \$10,000 of which is already provided for in the reforestation act.

Respectfully submitted,

F. W. RANE,  
*State Forester.*











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